CLAIMS

1.   A method for use in the tuning of a musical instrument having multiple adjustable frequency tone generators, each tone generator capable of producing one or more different order partials, at least one of the tone generators having at least one previously determined target frequency, the remaining tone generators not having previously determined target frequencies, the method comprising:

(a) measuring at least two partials for each of at least one tone generator;

(b) calculating at least one inharmonicity value, each inharmonicity value representing a relationship between two partials of a respective said at least one measured tone generator;

(c) specifying a table of stretch values, each stretch value corresponding to a pair of tone generators forming a musical interval, each stretch value representing a relationship between target frequencies of the tone generators in said pair; and

(d) calculating target frequencies for a plurality of the remaining tone generators based upon said determined target frequencies, said inharmonicity values and said stretch values.

2.   The method of claim 1, further comprising repeating (d) until target frequencies are calculated for substantially all of the remaining tone generators.

3.   The method of claim 1, wherein the tone generators having previously determined target frequencies include a reference tone generator having a preferred reference frequency.

4.   The method of claim 1, wherein the tone generators having previously determined target frequencies comprise temperament notes.

5.   The method of claim 1, further comprising adjusting at least one tone generator of the multiple tone generators based upon said calculated target frequencies.

6. The method of claim 1, wherein said defining a table of stretch values further comprises defining weighting values corresponding to each said stretch value.

7. The method of claim 6, wherein said calculating target frequencies further comprises weighting said stretch values by the corresponding weighting value.

8. The method of claim 1, wherein said relationship between said target frequencies comprises an addition or subtraction of the stretch value from a previously determined target frequency.

9. The method of claim 1, wherein said musical interval comprises a single octave.

10. The method of claim 1, wherein said musical interval comprises a double octave.

11. The method of claim 1, wherein said musical interval comprises a triple octave.

12. A method for use in the tuning of a musical instrument having multiple adjustable frequency tone generators, each tone generator capable of producing one or more different order partials, the method comprising:

    (a) energizing a tone generator of the multiple tone generators;

    (b) measuring an instantaneous frequency for each of at least two partials of said energized tone generator at a number of times while said energized tone generator is sounding;

    (c) calculating at least one instantaneous inharmonicity value, each instantaneous inharmonicity value representing a relationship between two of said instantaneous frequencies of said at least two partials of said energized tone generator at a number of times while said energized tone generator is sounding;

    (d) calculating at least one composite inharmonicity value based on said instantaneous inharmonicity values; and

(e) calculating a target frequency for at least one tone generator of the multiple tone generators based upon said calculated at least one composite inharmonicity value.

13. The method of claim 12, wherein said at least one composite inharmonicity value is based on an average of said instantaneous inharmonicity values.

14. The method of claim 12, wherein said calculating at least one composite inharmonicity value based on an average of said instantaneous inharmonicity values comprises calculating a weighted average of said instantaneous inharmonicity values.

15. The method of claim 14, wherein said weightings of said weighted average are based on the consistency of recent instantaneous frequency measurements.